

17 (Amended). A method of fabricating an integrated circuit using CMP consisting essentially of:

- providing a substrate;
- depositing silicon dioxide over the substrate such that the silicon dioxide forms low structure areas and high structure areas;
- forming a CMP slurry having a low-density high structure polishing rate and a high-density high structure polishing rate, wherein the low-density high structure polishing rate is essentially the same as a high-density high structure polishing rate; and
- polishing the high structure areas, whereby the polishing rate is independent of pattern density.

REMARKS

This amendment responds to an Office Action dated July 13, 2001. Claims 1-20 are pending in the application. Claims 1-20 were rejected under 35 U.S.C §103(a) as being unpatentable over Koderia *et al.* (US 5,445,996) in view of Grover *et al.* (US 5,759,917) and further in view of Burke *et al.* (US 5,934,978). No claims have been allowed.

Applicant has amended the claims to further clarify the scope of the invention. Applicant's invention provides a method of fabricating integrated circuit structures using CMP that provides an ability to polish a silicon dioxide layer such that the high structure areas are polished at substantially the blanket polishing rate and low structure areas are polished at an essentially zero polishing rate, without the use of other materials deposited onto the silicon dioxide to control the polishing characteristics.

Kodera et al. teaches the polishing of a polysilicon film, which is more resistive to polishing than silicon dioxide, and a silicon dioxide film together to reduce the polishing rate of low areas in order to avoid dishing. Col. 24, lines 32-41. Once the polysilicon film is polished off of the higher structures, the underlying SiO₂ film is polished at a faster rate than the polysilicon film remaining over the low areas. In other words Kodera *et al.* uses a polysilicon stopper. The benefits of a stopper are further summarized in Col. 26 lines 52-58, which specifies that the film to planarized and the stopper layer are planarized simultaneous, and Col. 27 lines 22-38. Kodera et al. teaches modification of the device structure by applying a stopper as the means of achieving desired polishing behavior. Kodera et al. essentially teaches away from modifying the slurry in any way to achieve the desired polishing behavior. Kodera *et al.* uses a stopper whereas Applicant achieves the result by modifying the slurry. Further, there is no teaching or suggestion in Kodera et al. to combine its teachings with those of Burke et al. or Grover et al.

Applicant has amended the claims, using "consisting essentially of", to further clarify that the present invention does not rely or cover processes that utilize another material to affect the polishing rates of the silicon dioxide material. Specifically, Applicant does not use a polysilicon stopper.

Grover *et al.* addressed the issues of selectivity between silicon dioxide and silicon nitride. It did not address modifying the behavior of slurry used to polish just silicon dioxide. There is no teaching or suggestion to combine Grover *et al.* with Kodera *et al.* to control the polishing rates, as both of these methods are related to two material systems and not the polishing of silicon dioxide alone.

Burke *et al.* addressed a means to reduce scratching and associated defects. Although, it disclosed the use of ethylene glycol it did not disclose the use of ethylene glycol to modify the polishing rates of silicon dioxide, which is Applicant's invention.

Accordingly, applicant respectfully submits that his claimed process is not taught or suggested in any reference cited by the Examiner, either alone or in combination.

As an attachment hereto, applicant herewith submits a copy of all claims pending in the application, incorporating all amendments entered to date or submitted herein, along with a copy showing changes by underlining and strikethrough.

A request for a one-month extension of time to respond, together with a deposit account authorization covering the fee therefore, accompanies this amendment.

In view of the foregoing, the Applicant requests reconsideration of the application and submits that the application is now in allowable form and should be passed to issue.

Respectfully submitted,

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